

**INFORMATION SYSTEM OF LIBRARY AT PONDOK PESANTREN
DARUL IHSAN MUHAMMADIYAH
SRAGEN**



**This Final Project is Compiled as a Condition to Complete Bachelor Degree Program at
Department of Informatics Faculty of Communication and Informatics**

Submitted:

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L 200 144 018

**DEPARTMENT OF INFORMATICS
FACULTY OF COMMUNICATION AND INFORMATICS
UNIVERSITAS MUHAMMADIYAH SURAKARTA
2018**

APPROVAL PAGE

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SCIENTIFIC PUBLICATION

Submitted by:

MUHAMMAD SATRIO SUJARWO

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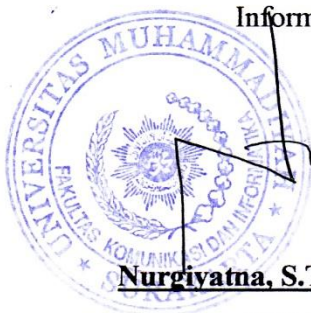
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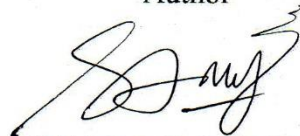
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Abstrak

Pondok Pesantren darul ihsan muhammadiyah adalah lembaga yang bergerak di bidang pendidikan di bawah kepemimpinan wilayah muhammadiyah (PDM) Kab. Sragen. pendidikan menggunakan sistem pesantren cocok untuk penerus kader muhammadiyah. Salah satu fasilitas yang disediakan oleh Pesantren Muhammadiyah Darul Ihsan adalah perpustakaan. Tetapi perpustakaan masih menggunakan sistem manual. Di mana hampir semua kegiatan perpustakaan masih belum efisien dan waktu gizi. Oleh karena itu dengan sistem informasi perpustakaan dapat membantu dalam kegiatan perpustakaan. Dalam pembuatan sistem informasi menggunakan tampilan kontemporer dan dirancang menggunakan Yi FrameWork, PHP, dan MySQL. Dan dalam memasuki pustaka data menggunakan Barcode Scanner. Aplikasi telah berhasil di buat dan semua fungsi bekerja dengan baik oleh pihak SMP Darul Ihsan Muhammadiyah Sragen.

Kata Kunci: MySQL, Pemindai Barkode, Perpustakaan,PHP, Sistem informasi berdasarkan web, Yi Frame Work.

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Abstract

Pondok Pesantren darul ihsan muhammadiyah is an institution engaged in education under the leadership of muhammadiyah region (PDM) Kab. Sragen. education using pesantren system suitable for successor cadre muhammadiyah. One of the facilities provided by Pesantren Muhammadiyah Darul Ihsan is a library. But the library still uses manual system. Where almost all library activities are still inefficient and nutrition time. Therefore with library information system can help in library activities. In the manufacture of information systems using a contemporary look and designed using Yi FrameWork, PHP, and MySQL. And in entering the data library using Barcode Scanner. The application has been successfully created and all functions work well by the SMP Darul Ihsan Muhammadiyah Sragen.

Keywords:Barcode Scanner, Information System Web-Based, Library, PHP, MySQL, Yi Frame Work. Library,

1. INTRODUCTION

Muhammadiyah is a great Islamic movement in Indonesia. The name Muhammadiyah itself has taken from Prophet Muhammad SAW, which means those who follow the prophet Muhammad SAW,.The main purpose of establishing Muhammadiyah Islamic organization is to restore all deviations in Indonesia or the world. To do its purpose muhammadiyah has constitution to handle any field in Indonesia.

The Constitution within Muhammadiyah institution becomes an educational institution. Because education is the way for the Islamic movement in Indonesia to continue for generations. Muhammadiyah has various education ranging from elementary, junior high, high school, and university level. There is also a level of education that uses the pesantren system. One of the pesantren shelters under the muhammadiyah institution is Darul Ihsan Muhammadiyah, this cottage has two levels namely Madrasah Tsanawiyah and Madrasah Aliyah but not in the same place.

This boarding school has a library as a reference when there is a task from the teachers, because in their school is prohibited to bring electronic equipment except those provided by the party own hut. Usually students will come to visit the library to increase knowledge or just discuss with other students. Visiting students usually only write the name, purpose of visit and signature. Karna still using a manual system that has not been connected with technology to make librarians overwhelmed and difficult. A good library is a library that all processes are neat and clear. Because it is the goal in creating information systems for this library.

Making this information system made on request from the school. From school is very enthusiastic to create a new library system for the next few years. For that school also helps in the provision of tools support the library. In the self-supply of books for students is very complete from general literature to Islamic religious books are all available. All of these books almost have their own barcode or commonly called ISBN. ISBN itself is useful for all parts of the world.

ISBN itself in the data in the website and can be used in a very long time and not damaged if student not careful in using it. ISBN is required in the back of the book so that the book is recorded with good and can be used continuously. To have an ISBN writer / publisher give a ask for the book to be marketed appropriately and to have a legality in its publication. Books that do not have an ISBN are usually books printed before the 2000s, after which each book is required to put ISBN as a barcode of numbers for its data collection.

For that reason why I use a barcode scanner that is overdeveloped by old technology which until now is still in use to help data collection. In the use of the barcode itself before the officer entered the barcode code and the title of the book to be used with a barcode scanner. Barcode scanners are also not only for books but for

attendance and lending transactions. Barcode scanner will detect the code shown in the book and then reconcile all transactions done. This barcode is also useful to decide whether the book still has a time lending or have passed the deadline of borrowing.

A borrower of books in the library is usually given a library card as a collection so that the library can know the identity of a borrower. Borrowers who have used the manual system usually neglect in the return of books and books were lost. Therefore, with a well-structured data collection is expected to book in the library will be maintained neatly for several years going forward.

2. METHOD

This research used waterfall model approach as the method of development which is linear sequential (non-iterative) design approach for software development. Overview of this model is reflected in Figure1.

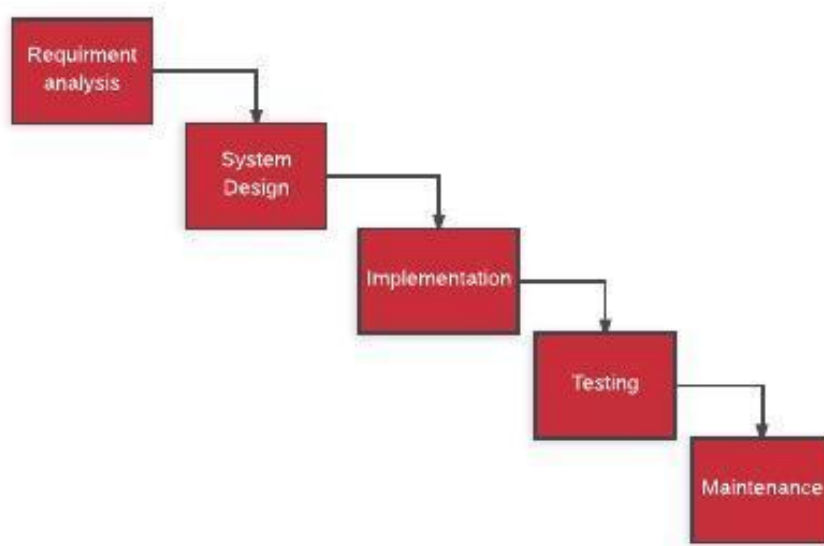


Figure 1. Waterfall Development Model

2.1. Requirement Analysis

All requirements related requirements: create information systems with book transaction features, include book data, create library member data, and make attendance of libraries, and make monthly bookkeeping by librarians.

2.2. System Design

After all analysis has been fulfilled on this section system architecture must be determined. The system architecture is consisting of user interface design and software development design. For web base application usually using PHP as the language and MySQL as the database server, then for design the user interface using the system interface. The design of the system is listed in Figure 2.

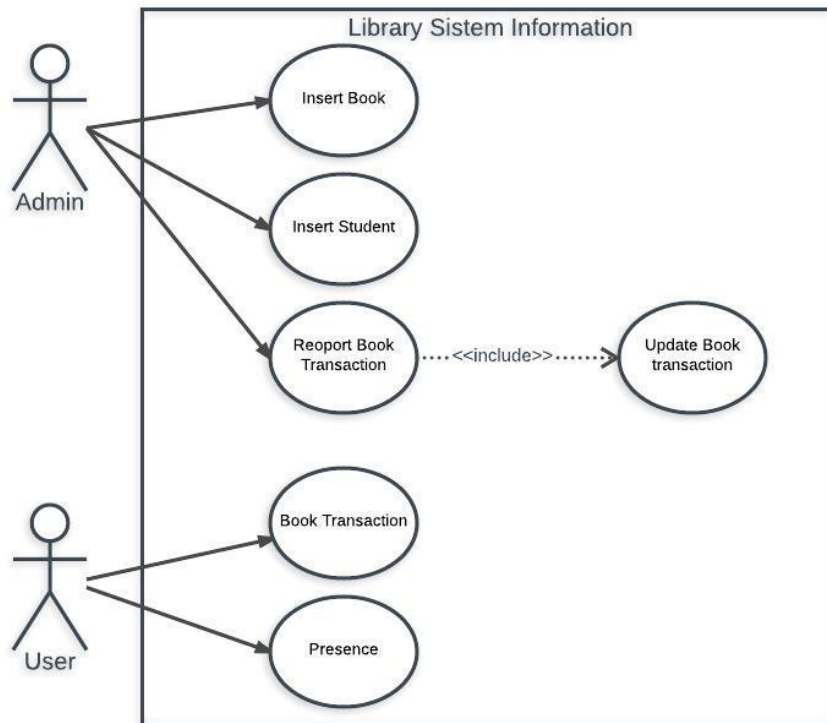


Figure 2. Use case diagram of the application

Figure 2 illustrates who uses and who manages the library information system. Then the workings of library information systems can be seen in the activity diagram. Activity diagrams are created based on one or more use cases from the use cases diagram (include, extend, and generalization)

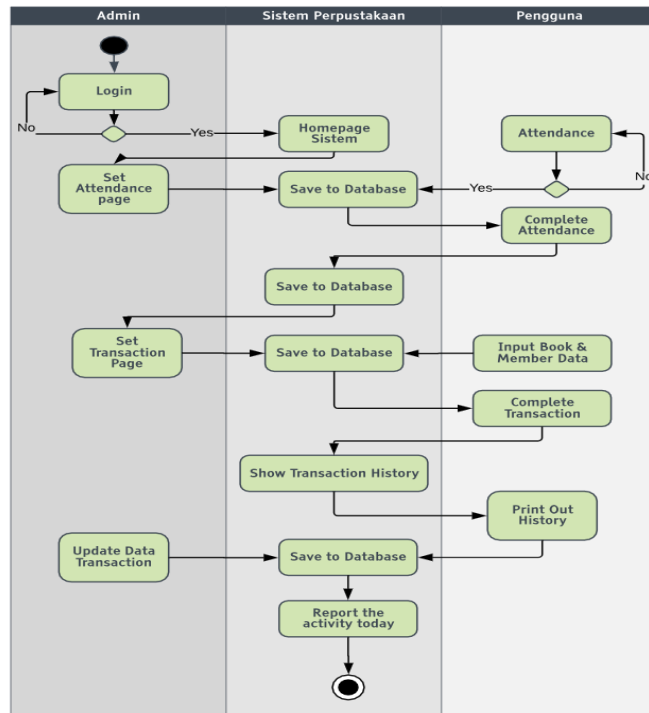


Figure 3.

Activity Diagram

After making the activity diagram move on system design starting from making of database which made very early and have important role in making information system. The database is created using MySQL as the database server. The existence of ER diagram can facilitate in making the system in all the features we make. Can be seen in figure 4.

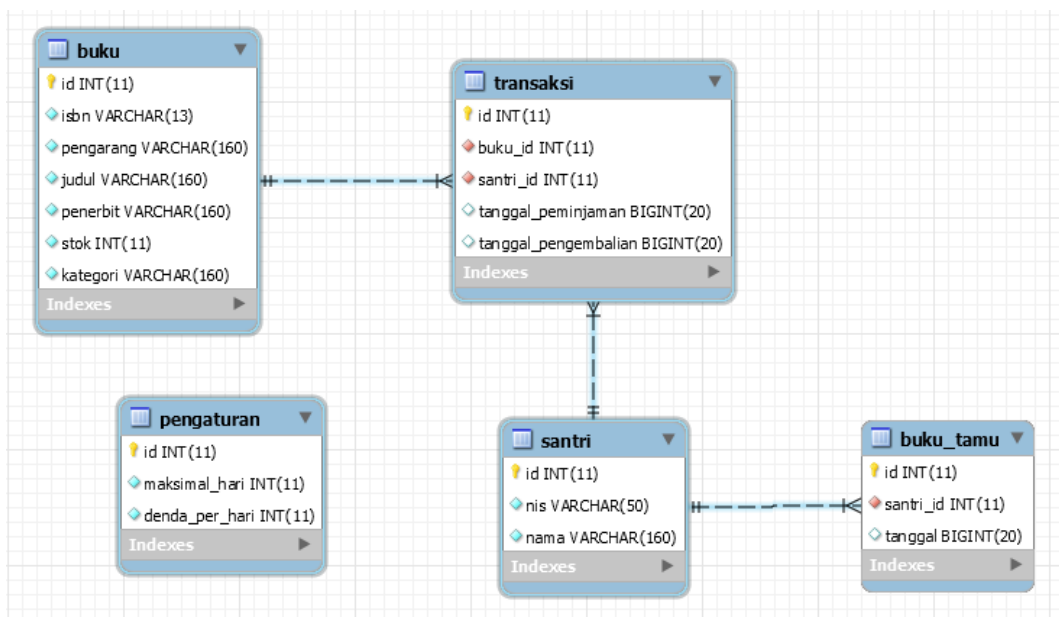


Figure 4. Database Design

So that all databases work easily and quickly then the creation of a simple interface will help the administrator to manage all that is in an information system. In the library information system has the contents: bookkeeping, transaction data, book data, member data, and system settings.

2.2.1. Login Sistem

The login system is one of the requirements for the information system that we have maintained from all possible risks that will occur. Shown in Figure 5.



Figure 5. Login Page

The login page just a simple display, [1] Notification for know what must we to do [2] Password box for iput the password [3] Button to login.

2.2.2. Home Page

In this page there is a function that helps the administrator who do bookkeeping and know the development of library activities every day. Shown in figure 6.

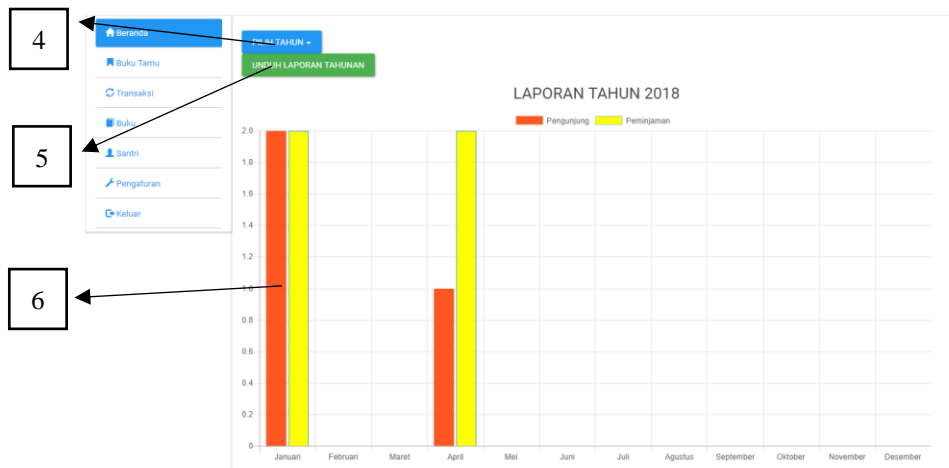


Figure 6. Home Page

On the main page there is a function that can help administrators, [4] Set the year for data entry bookkeeping [5] Download button to view statistics of library activities [6] statistics that show library activity every day. As well as statistics library activity will be an Excel file. Shown in picture 7.

A	B	C	D	E	F	G	H	I	J	K	L
LAPORAN PENGUNJUNG PERPUSTAKAAN TAHUN 2018 (Nama Santri)											
Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
Uswatun Nisa Ashidiqi			Yayan Luthfi Khoirina								
Vio Prastika Candela Fanestia											
LAPORAN PENGUNJUNG PERPUSTAKAAN TAHUN 2018 (Jumlah Santri)											
Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
2	0	0		1	0	0	0	0	0	0	0
LAPORAN PEMINJAMAN BUKU PERPUSTAKAAN TAHUN 2018 (Nama Santri)											
Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
Uswatun Nisa Ashidiqi			Yayan Luthfi Khoirina								
Vio Prastika Candela Fanestia											
LAPORAN PEMINJAMAN BUKU PERPUSTAKAAN TAHUN 2018 (Jumlah Santri)											
Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
2	0	0		2	0	0	0	0	0	0	0

Figure 7. Bookkeeping Report

In the excel data there are 2 data that can be known, the data coming and visitor data that visitors borrow books.

2.2.3. Guestbook Page

<ul style="list-style-type: none"> Beranda Buku Tamu Transaksi Buku Santri Pengaturan Keluar 	Menampilkan 1-4 dari 4 item.	
	Santri	Tanggal
	Yayan Luthfi Khoirina	Jumat, 27 April 2018 14:49:08 WIB
	Uswatun Nisa Ashidiqi	Selasa, 23 Januari 2018 11:21:44 WIB
	Vio Prastika Candela Fanestia	Selasa, 23 Januari 2018 10:58:25 WIB
	Uswatun Nisa Ashidiqi	Selasa, 23 Januari 2018 10:56:27 WIB

Figure 8. Guessbook Page

The guestbook page looks simple showing only the visitor's name and date, but on this page the data is filled only using student cards that have barcodes owned by the students. so without a student card is not allowed to do library activities.

2.2.4. Transaction Page

The transaction page contains the most important content. Inside this page there is the function of borrowing, refunding, printing transaction cards, and if there is damage to the barkode scanner there are manual inputs to conduct transactions.

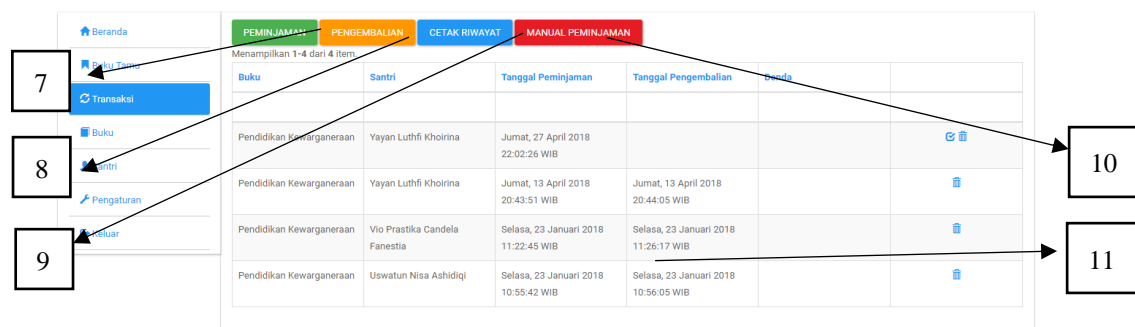


Figure 7.Transaction Page

There are buttons that have different functions. [7] green button borrowing for borrowing book transactions [8] yellow button to perform book return transactions [9] blue button to print transaction book[10] red button to assist lending transactions in case of damage to the barkode scanner and the rest of this page is display all of the transaction [11].

Before printing the library transaction card the students also have to carry the library transaction book. Which serves as a proof that has made transactions in the library.Shown at figure 8.

Yayan Luthfi Khoirina / 1083					
Judul	Penulis	Tanggal Pinjama	Tanggal Kembali	Denda	Paraf

Figure 8.Transaction Page

In the book there are data in the foreground to prove that the transaction was doing lending transactions.

2.2.5. Book Data Page

On this page there are several functions that can be used to organize the data books that have. Features include entering data units, entering a lot of data, and making new barkode (when the book requires).

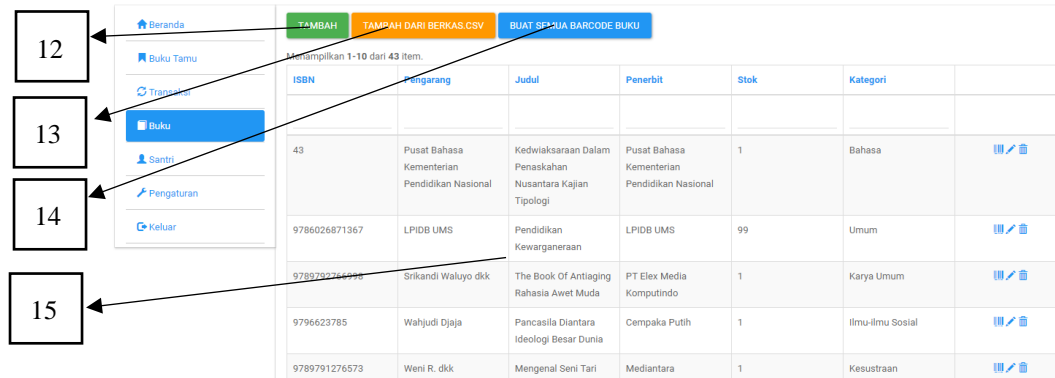


Figure 9. Book data Page

On the book data page there are 3 buttons that serve as set data book. Button [12] there is a function to enter a book data. Figure 10. Required book data is ISBN, author, title, publisher, stock, category.

Figure 10. FormBook Data

Then in the second key [13] it has the function of uploading the data of the bookin large amount by converting from the .csv data into a system. And the last button [14] which has a helper function when a book does not have an ISBN. Which will serve to create new barcodes.

2.2.6. Member data page

This page is similar to the book data page but has its own distinction that helps in entering the data member. In the case of members need more in need then there is a function that helps to library members. Figure 11.

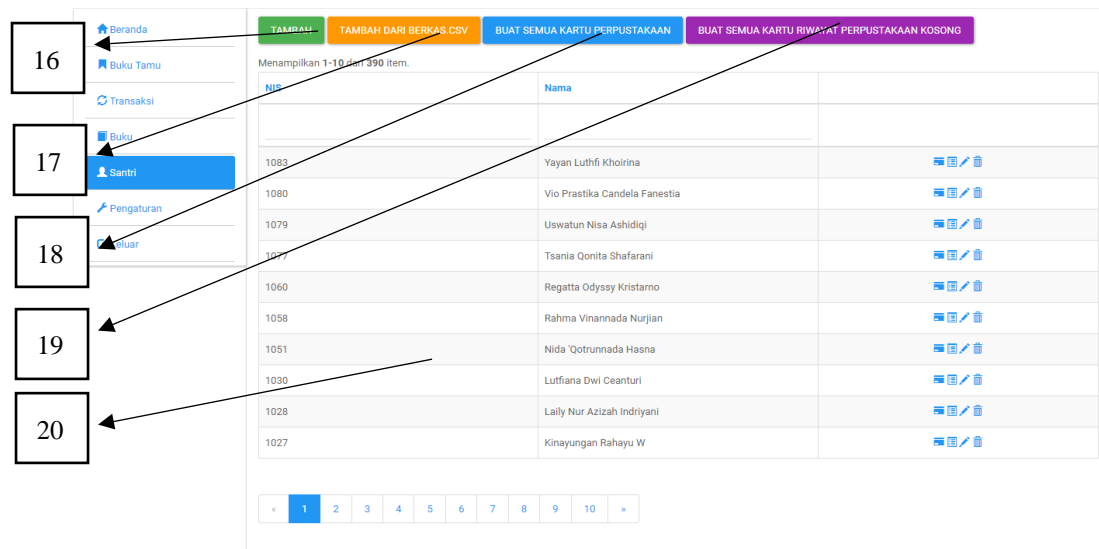


Figure 11. Member Data Page

On the member data page there are several buttons that help in managing member data. The first key [17] to enter a large number of data members using .csv, then the third key [18] serves to create many library cards and the last button [19] makes the card library on many. then there after the member data has been entered and can be used [20]. In the first button there is also a form that can be filled with student data, only in need but useful for the system.

2.2.7. Settings page

On the last page is the settings page that serves to help all the pages like backup the existing data, restore lost data and delete all data that is not in need. Here there is also a function that regulates how much fines can be in case of late return the book.

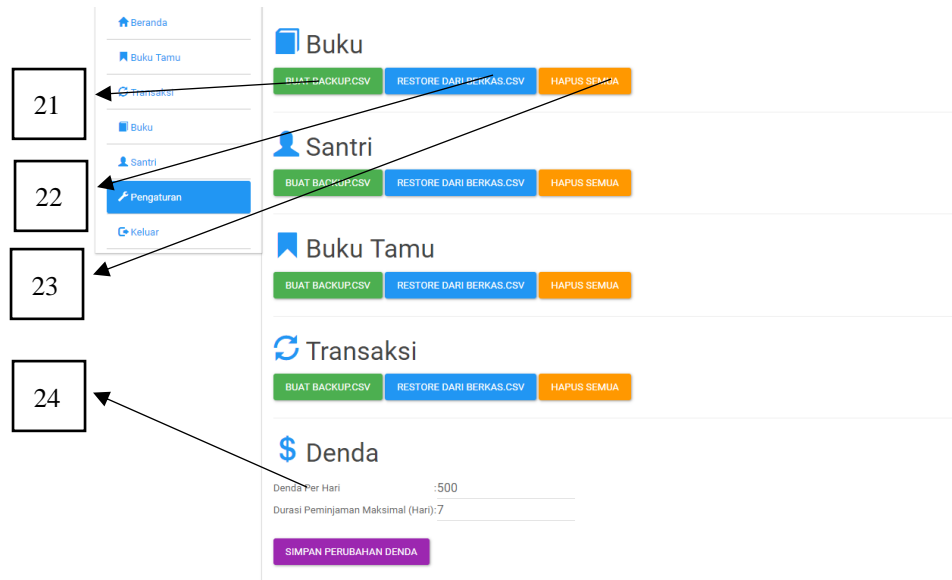


Figure 12. Settings Page

For the last page in the library information system has settings for each system page. [21] button serves to backup existing data in the system. The [22] button serves to restore the system data that has been updated / different. Then the last button [23] is a button to delete all the data that is in the system. And at number 24 is an arrangement to arrange fines and book returns.

2.3. Technology Design

This information system is built using a programming language PHP and Javascript, implemented with MySQL, CSS and using Yii as the framework. In addition, this research also use some software and hardware technologies : Sublime Text 3, XAMPP, Web Browser, Core i3 Laptop, 4GB RAM, 512GB HDD and Windows as Operating System. Then the most important to make sure this system work is Barcode Scanner.

2.4. Implementation

This stage describes by using Language Programming Algorithm Flow chart. It Implemented using PHP Language and JavaScript with system Flow as in Figure 13.

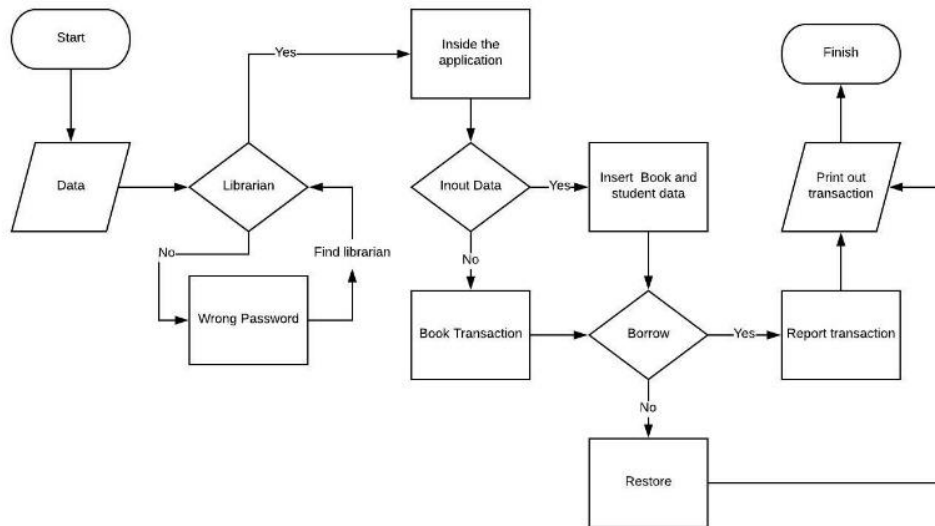


Figure13. Flowchart Information System of Library

2.5. Testing

This website is using browser to test it, website for make all of the PHP can fit together in one-page website interview. If there is an error occurred, the website will submit the error which line or which program is error. The website can be fixed with critics and suggestions.

2.6. Maintenance

The last stage is maintenance, where the website performance after the testing phase. This stage is where the bugs recorded in the testing phase will be fixed. Under no circumstances will the author be ready to improve and assist in the process of future use of the system.

3. RESULT AND DISCUSSION

After all library information system finished in proceed with testing by using black box testing, aiming for the system can be used properly and run as expected.

3.1. Black Box Testing

Black box testing is a test that only observes the results of execution through test data and functional checking of the software. So analogous to the way we see a black box, the kit can only see the outward appearance, without knowing what's behind the black wrapper. This test is performed by the admin who will use library information system such as table 1.

1	Login Testing	Enter a password to access the system.	After successful login the user will switch to the main menu of the information system.	Valid
2	Absence of library guest book	Use Card member code to barcode scanner	The system shows the attendance list of students and attendance statistics changed.	Valid
3	Manage book data and member data	Changing and adding required data for book data as well as member data.	Data-Data successfully modified by library admin.	Valid
4	Book lending transactions.	Using the ISBN barcode code and using a library card that has a barcode.	The system displays a list of transactions that have been successfully borrowed.	Valid
5	Print transaction history.	Printing from member's history book.	The prints are in the form of proof that they have borrowed by the members.	Valid
6	Emergency situation in book lending.	Make a transaction using the registered ISBN number and library member number.	The system displays a list of transactions that have been successfully borrowed. Although without barcode scanner	Valid
7	Set up each page and adjust the transaction.	Backing up data, restoring data, deleting all existing data and arranging fines agreed.	The library system administrator can understand the functions in the settings page.	Valid

Table 1. Black Box Testing

From the above test table or what we call the black box testing the outline of the library admin can carry out the library activities properly and correctly. Everything needed by the library admin can be fulfilled by what has been provided in the information system. With the library information system is expected to help all activities undertaken in the library.

3.2. Result

There are two big underline for this system. For anything in this system can be take the advantages and disadvantage. First the advantages of using this system can make our library activity for librarian in SMP Darul Ihsan Muhammadiyah Sragen more efficient and more structured. With this system also make the student more care about the book and can be used longer for another year. But this system also have some disadvantage. The system can only run offline, but because only for the use by the institution itself is not so much a problem

4. CONCLUSION

This research produces an information system for library activities that suits the needs of users. The test results from the making of this system is expected to facilitate the library of SMP Darul Ihsan Muhammadiyah Sragen. This statement is taken from the results of black box testing done in writing has a valid result of 8 points in the test. In the hope that with this system students / library members can maximize the library well and correctly.

4.1. Advice

Library information system, so the system runs, the system is still a lot of shortcomings in the appearance of regular website and the system is still in the offline state and can be online it can be used for all institutions in the future.

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